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Investor protection and income inequality: Risk sharing vs risk taking

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ABSTRACT

This paper studies the relationship between investor protection and income inequality. In the presence of market frictions, better protection makes investors more willing to take on entrepreneurial risk when lending to firms, thereby improving the degree of risk sharing between financiers and entrepreneurs. On the other hand, by increasing risk sharing, investor protection also induces more risk taking. By increasing entrepreneurial risk taking, it raises income dispersion. By reducing the risk faced by entrepreneurs, it reduces income volatility. As a result, the relationship between investor protection and income inequality is non monotonic, since the risk-taking effect dominates at low levels of investor protection, while risk sharing becomes stronger when more risk is taken. Empirical evidence from up to sixty-seven countries spanning the period 1976–2004 supports the predictions of the model.

1. Introduction

The literature on institutions, law and economics has shown that investor protection affects significantly the financial structure of an economy, and has investigated the effects of financial development on economic performance in terms of GDP growth, productivity and investment.[1] What has received less attention is that investor protection, through its effect on financial structure and the allocation of risk, may influence the risk taking behavior of investors and firms, thereby affecting income inequality. To fill this gap, this paper investigates the link between investor protection and income inequality, both theoretically and empirically. It proposes a model where investor protection promotes risk sharing between financiers and entrepreneurs, thereby inducing more risk taking in the economy. Better risk sharing and wider risk taking, in turn, affect income inequality in opposite ways. The main results of the model are then confronted with the data.

To formalize these ideas, I construct a simple model of investors and entrepreneurs where agents are risk averse and heterogeneous in ability. Investors decide how to allocate their endowment between safe loans (debt) and diversified portfolios of risky (equity-like) assets, while entrepreneurs face a choice between a safe and a risky technology, whose probability of success depends on ability. Starting up a firm entails a fixed entry cost that entrepreneurs must cover by borrowing. Financial markets are subject to a moral hazard problem arising from the non-observability of output to financiers. Measures of investor protection alleviate this financial friction. In particular, I assume that investor protection promotes transparency by imposing a cost to misreport cash flow. [2] Better guarantees generate more confidence among investors, thereby making them more willing to insure the entrepreneurs through lending. It follows that in financial systems with stronger investor protection there is more equity-like external finance relative to debt, which offers entrepreneurs a higher degree of risk sharing. Finally, I rule out wealth heterogeneity among agents, so that all inequality is due to idiosyncratic factors (ability), financial market conditions and income risk.[3]

In the model, better investor protection affects income inequality in two ways. (i) It improves risk sharing, thereby reducing income volatility for risky entrepreneurs; and (ii) it raises the share of risky firms, and hence agents exposed to earnings risk. While (i) tends to

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[1] See, among others, Acemoglu and Johnson (2005), Beck and Levine (2004), La Porta et al. (1997, 2006), Levine (2005) and references therein.

[2] Investor protection takes the form of a hiding cost also in Aghion et al. (2005), Castro et al. (2004) and Lacker and Weinberg (1989). In this paper, like in the two latter, the cost is proportional to the hidden amount, while in the first, it equals a fraction of the initial investment.

[3] Using microdata, Hurst and Lusardi (2004) show that wealth may not be the key factor affecting entrepreneurial choices, while Ardagna and Lusardi (2008) provide evidence that skills and the fear of failure are among the most important determinants of entrepreneurship. This lends support to my modeling choice of abstracting from wealth heterogeneity to better focus on other factors, such as risk and ability.

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reduce inequality, (ii) raises it. The analysis shows that the "risk taking" effect (ii) dominates when investor protection is low since risky entrepreneurs still face a considerable earnings risk, while the "risk sharing" effect (i) prevails when investor protection is high since better insurance applies to a large mass of risky entrepreneurs. Hence, the relationship between investor protection and income inequality is predicted to be non-monotonic. Moreover, since investor protection affects the financial structure of the economy, the same non-monotonic relationship holds between the share of equity-like externalfinance and inequality.

To evaluate empirically the main results of the model, I consider a dataset covering up to sixty-seven countries observed between 1976 and 2004. The choice of a cross-country analysis is dictated by the fact that investor protection is generally set by law and hence exhibits little within-country variation. I adopt two proxies for inequality: first, the Gini coefficient of the income distribution, which is available for a relatively large sample of countries and years. Although the model refers to entrepreneurs, which belong to the top income percentiles, three main arguments may justify the use of a general indicator of inequality.[4] First, recent evidence from several countries suggests that a large fraction of the variation in income inequality over the last two decades is explained by changes at the top of the distribution (see, among others, Atkinson et al., 2009 and Heathcote et al., 2010). Second, employees normally earn higher wages and are subject to higher employment risk when working in more productive and riskier firms.[5] Hence the results obtained for entrepreneurs may be expected to trickle down to all workers. Finally, the model could also be interpreted as one of occupational choice *à la* Kihlstrom and Laffont (1979), where each agent can either be a worker receiving a fixed wage or an entrepreneur facing risk. In this case, the implications on earnings inequality would refer to the entire population. Nonetheless, for robustness, I replicate part of the analysis proxying inequality with the ratio of the top 1st to 10th percentiles of the income distribution. The main shortcoming with this variable, recently compiled by Alvaredo et al. (2011), is its very limited cross-sectional availability (at present, the database covers only 23 countries).

Turning to the independent variables, I proxy investor protection with the *de jure* index compiled by La Porta et al. (2006), and estimate its non-linear relationship with inequality. Next, I evaluate the theoretical mechanism following a two-step approach. I first show that better protection tends to coincide with a higher share of equity-like external finance, and then I estimate a non-linear relationship between the indicator of financial structure and inequality on a wider cross-section and a panel. The results suggest that inequality varies non-monotonically both with investor protection and the relative weight of equity-like finance, as predicted by the model.

The paper is related to four main strands of literature. Acemoglu and Johnson (2005), as well as La Porta et al. (1998), show that investor protection, and in general institutions aimed at contractual protection, affect the financial structure of an economy by promoting the development of stock markets, but have unclear effects on economic performance. No attention was devoted, however, to study the effects on inequality.

Theoretical contributions from the growth literature (see Aghion and Bolton, 1997; Banerjee and Newman, 1993; Galor and Zeira, 1993, and Greenwood and Jovanovic, 1990, among others) have proposed explanations for the relationship between financial development, inequality and growth. In most of these models, income inequality originates from heterogeneity in the initial wealth distribution, paired with credit market frictions.[6] As the poorest are subject to credit constraints, they are prevented from making the efficient investment, which affects the dynamics of wealth and income. I depart from this approach in two main respects. First, the financial friction affects the share of risk borne by agents, rather than the amount of external finance available to them. Second, I consider a different source of ex-ante heterogeneity (in productivity) which, together with the extent of risk sharing and risk taking, ultimately determines the income distribution.[7]

This paper also contributes to the recent literature on the macroeconomic implications of entrepreneurship which addresses the effects of financial frictions on investment, growth and volatility through their impact on entrepreneurial choices (see Quadrini, 2009 for a review). The papers focusing on distributional issues tend to consider financial frictions as a factor that perpetuates and exacerbates wealth inequality by affecting the investment and saving choices of entrepreneurs, and abstract from entrepreneurial risk sharing and risk taking. Other papers, such as Castro et al. (2004) and Michelacci and Fabiano (2011), relate financial institutions and entrepreneurship to growth through risk sharing, risk taking, and managerial ability, but do not study inequality. Thesmar and Thoenig (forthcoming) point out that better risk sharing may induce higher risk taking and raise volatility. Caselli and Gennaioli (2001) show that weak contract enforcement deteriorates productivity (TFP) by discouraging untalented family-firm owners from hiring competent managers (as in Burkart et al., 2003).

The vast empirical literature on financial development and economic performance (see Levine, 2005 and references therein) provides evidence that deeper financial markets foster growth. Very little attention was paid to the effects of financial development on income inequality. Two recent contributions (see Beck et al., 2007 and Clarke et al., 2006) show that higher availability of credit to the private sector tends to reduce income inequality. My results are consistent with this evidence, but also provide a novel insight suggesting that equity-like finance may increase inequality.

The remainder of the paper is organized as follows. Section 2 presents the model of entrepreneurial choice and shows how earnings and the degree of risk taking vary in equilibrium with investor protection. In Section 3, I characterize analytically and by means of numerical solution how income inequality responds to changes in investor protection and financial structure. Section 4 briefly discusses some reasons why investor protection may be imperfect and vary across countries. Section 5 provides empirical evidence from up to sixty-seven countries over the period 1976–2004 supporting the main results of the model, and Section 6 concludes.

2. The model

In this section, I propose a simple static model where risk-averse agents, heterogeneous in their entrepreneurial ability, have to choose between safe and risky projects and need external finance. Asymmetric information in the financial market generates a moral hazard problem that makes it too costly for some entrepreneurs to finance risky projects. Investor protection may alleviate moral hazard, thereby easing the conditions of access to finance and promoting both risk sharing and risk taking.

[4] Note that, if investor protection affected inequality among the poor in a different way and through another channel, my estimates would suffer from attenuation bias.

[5] Evidence that more productive firms pay higher wages is provided, among others, by Oi and Idson (1999).

[6] The financial friction may consist in the non-observability of ex-post outcomes as in Banerjee and Newman (1993) and Galor and Zeira (1993), or of effort as in Aghion and Bolton (1997).

[7] Similarly to this paper, in Acemoglu and Zilibotti (1999) income inequality is generated by managerial incentives. Antunes et al. (2008) propose a quantitative model with heterogeneity in wealth and ability where weak financial institutions hinder growth and raise income inequality. Yet, both papers abstract from firm-specific idiosyncratic risk.